$$
{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V \underset{\omega}{\triangleright}^{2}\, {}^{\nu}\mathbb{C} = \frac{{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V \xrightarrow[\text{hol}]{\;ʔ\;} \mathbb{C}}{\int_{d\mu^{\nu}_{u:v}}^{{}_{\mathsf{C}\mathbb{C}}V} \left\ulcorner_{u:v} ʔ \right.^{2} < \infty} = {}_{\mathsf{C}\mathbb{C}}\mathbb{I}V \underset{\omega}{\triangleright}^{2} \underbrace{\mathbb{I} \triangleright^{\nu}\, {}^{n}\mathbb{C}}
$$

$$
d\,\mu^{\nu}_{u:v} = \frac{dudv}{\pi^{d}} \frac{{}^{u+u^{*}-v\Phi v}{}_{X}\Delta_{\nu - 2d_1^{\sharp}/r - d_2^{\sharp}}}{\Gamma_{\nu - d/r}}
$$

$$
{}^{u_1:v_1}{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V^{-\nu}_{u_2:v_2} = {}^{u_1+u_2^{*}-v_1\Phi v_2}{}_{X}\Delta_{-\nu}
$$

$$
{}^{u_1:v_1}{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V^{-\nu}_{u_2:v_2} = \frac{\Gamma_{\nu^{\sharp}}}{\Gamma^{\nu - d/r}_{X^{+}_{\mathsf{C}}}} \int_{dudv/\pi^{d}}^{{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V} {}^{u_1:v_1}{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V^{-\nu}_{u:v}\; {}^{u:v}{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V^{\nu}_{u:v}\; {}^{u:v}{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V^{-\nu}_{u_2:v_2}
$$

$$
\underline{{}^{u:v}{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V^{-\nu}_{u_1:v_1}} = \frac{{}^{u:v}{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V^{-\nu}_{u_1:v_1}}{{}^{u_1:v_1}{}_{\mathsf{C}\mathbb{C}}\mathbb{I}V^{-\nu/2}_{u_1:v_1}} = \frac{{}^{u_1+u_1^{*}-v_1\Phi v_1}{}_{X}\Delta^{\nu/2}}{{}^{u+u_1^{*}-v\Phi v_1}{}_{X}\Delta^{\nu}}
$$

$$\int_{dudv/\pi^{d}}^{\mathbb{C}^{\mathbb{I}}_{\mathbb{C}}\,V} \frac{\Gamma_{\lambda}}{u_1+u^{*}-v_1\Phi v\,{}_X\Delta^{\lambda^{\sharp}}}\,\frac{u+u^{*}-v\Phi v\,{}_X\Delta^{\beta^{\sharp}}}{\Gamma_{\beta^{\sharp}+d_1/r}}\,\frac{\Gamma_{\lambda}}{u+u_2^{*}-v\Phi v_2\,{}_X\Delta^{\lambda^{\sharp}}} = \frac{\Gamma_{2\lambda-\beta-2d_1^{\sharp}/r-d_2^{\sharp}/r}}{u_1+u_2^{*}-v_1\Phi v_2\,{}_X\Delta^{2\lambda^{\sharp}-\beta^{\sharp}-2d_1/r-d_2/r}}$$

$$\text{LHS} = \int_{dv/\pi^{d_2}} \int_{dx/2^{d_1}} \int_{dy/(2\pi)^{d_1}}^{iX} \frac{\Gamma_{\lambda}}{u_1+x-y-v_1\Phi v\,{}_X\Delta^{\lambda^{\sharp}}}\,\frac{2x-v\Phi v\,{}_X\Delta^{\beta^{\sharp}}}{\Gamma_{\beta^{\sharp}+d_1/r}}\,\frac{\Gamma_{\lambda}}{x+y+u_2^{\sharp}-v\Phi v_2\,{}_X\Delta^{\lambda^{\sharp}}}$$

$$= \int_{dv/\pi^{d_2}} \int_{dx/2^{d_1}} \frac{2x-v\Phi v\,{}_X\Delta^{\beta^{*}}}{\Gamma_{\beta^{\sharp}+d_1/r}} \int_{dy/(2\pi)^{d_1}}^{iX} u_1+x-y-v_1\Phi v\,\mathfrak{e}_{\xi_1}^{-1}\ {}^{\lambda-d_1^{\sharp}/r}{}_X\Delta_{\xi_1} \int_{X_{\mathbb{C}}^{+}}^{d\xi_1} x+y+u_2^{*}-v\Phi v_2\,\mathfrak{e}_{\xi_2}^{-1}\ {}^{\lambda-d_1^{\sharp}/r}{}_X\Delta_{\xi_2} \int_{X_{\mathbb{C}}^{+}}^{d\xi_2}$$

$$= \int_{dv/\pi^{d_2}}^{V} \int_{dx/2^{d_1}} \frac{2x-v\Phi v\,{}_X\Delta^{\beta^{\sharp}}}{\Gamma_{\beta^{\sharp}+d_1/r}}\, u_1+u_2^{\sharp}+2x-v_1\Phi v-v\Phi v_2\,\mathfrak{e}_{\xi}^{-1}\ {}^{2\lambda-2d_1^{\sharp}/r}{}_X\Delta_{\xi} \int_{X_{\mathbb{C}}^{+}}^{d\xi}$$

$$= u_1+u_2^{*}\mathfrak{e}_{\xi}^{-1}\ {}^{2\lambda-2d_1^{\sharp}/r-d_2^{\sharp}/r}{}_X\Delta_{\xi}\ {}^{d_2^{\sharp}/r}{}_X\Delta_{\xi} \int_{dv/\pi^{d_2}}^{V} v\Phi v\,\mathfrak{e}_{\xi}^{-1}\ v_1\Phi v\,\mathfrak{e}_{\xi}\ v\Phi v_2\,\mathfrak{e}_{\xi} \int_{dx/2^{d_1}}^{\mathbb{C}^{\mathbb{I}}_{\mathbb{R}}} \frac{2x-v\Phi v\,{}_X\Delta^{\beta^{\sharp}}}{\Gamma_{\beta^{*}+d_1/r}}\, 2x-v\Phi v\,\mathfrak{e}_{\xi}^{-1} \int_{X_{\mathbb{C}}^{+}}^{d\xi}$$

$$= u_1+u_2^{*}\mathfrak{e}_{\xi}^{-1}\ {}^{2\lambda-2d_1^{\sharp}/r-d_2^{\sharp}/r}{}_X\Delta_{\xi}\ v_1\Phi v_2\,\mathfrak{e}_{\xi} \int_{X_{\mathbb{C}}^{+}}^{d\xi} \int_{d\acute{x}}^{\mathbb{C}^{\mathbb{I}}_{\mathbb{R}}} \frac{{}^{\acute{x}}{}_X\Delta^{\beta^{\sharp}}}{\Gamma_{\beta^{\sharp}+d_1/r}}\, \acute{x}\,\mathfrak{e}_{\xi}^{-1}$$

$$= u_1+u_2^{*}-v_1\Phi v_2\,\mathfrak{e}_{\xi}^{-1}\ {}^{2\lambda-2d_1^{\sharp}/r-d_2^{\sharp}/r}{}_X\Delta_{\xi}\ {}^{-\beta-d_1^{\sharp}/r}{}_X\Delta_{\xi} \int_{X_{\mathbb{C}}^{+}}^{d\xi} = u_1+u_2^{*}-v_1\Phi v_2\,\mathfrak{e}_{\xi}^{-1}\ {}^{2\lambda-\beta-3d_1^{\sharp}/r-d_2^{\sharp}/r}{}_X\Delta_{\xi} \int_{X_{\mathbb{C}}^{+}}^{d\xi} = \text{RHS}$$

$$= \int_{d\acute{x}}^{\mathbb{C}^{\mathbb{I}}_{\mathbb{R}}} \int_{dv/\pi^{d_2}}^{V} v\Phi v\,\mathfrak{e}_{\xi}^{-1}\ \overline{{}^{v}\psi_{\xi}}^{\,2}\ {}^{\acute{x}}{}_X\Delta_{\nu-2d_1/r-d_2/r}\ \acute{x}\,\mathfrak{e}_{\xi}^{-1} \int_{X_{\mathbb{C}}^{+}}^{d\xi} = \text{RHS}$$